

## SECTION 07430

### COMPOSITE PANELS

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Aluminum composite material (building panels) used as the exterior cladding of new buildings.
- B. Aluminum composite material (building panels) used as the exterior cladding for retrofit applications.

##### 1.2 RELATED SECTIONS

- A. Section 05100 - Structural Metal Framing.
- B. Section 05400 - Cold-Formed Metal Framing.
- C. Section 07200 - Thermal Protection.
- D. Section 07600 - Flashing and Sheet Metal.
- E. Section 07900 - Joint Sealers.
- F. Section 09900 - Paints and Coatings.

##### 1.3 REFERENCES

- A. ASTM B 117 - Practice for Operating Salt Spray (Fog) Apparatus.
- B. ASTM C 481 - Test Method for Laboratory Aging of Sandwich Constructions.
- C. ASTM D 635 - Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- D. ASTM D 822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- E. ASTM D 903 - Test Method for Peel or Stripping Strength of Adhesive Bonds.
- F. ASTM D 968 - Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.

- G. ASTM D 1781 - Test Method for Climbing Drum Peel for Adhesives.
- H. ASTM D 2015 - Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter.
- I. ASTM D 2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- J. ASTM D 2247 - Practice for Testing Water Resistance of Coatings in 100 Percent Relative Humidity.
- K. ASTM D 2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- L. ASTM D 3363 - Test Method for Film Hardness by Pencil Test.
- M. ASTM D 4214 - Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.
- N. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
- O. ASTM E 108 - Test Methods for Fire Tests of Roof Coverings.
- P. ASTM E 162 - Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.
- Q. ASTM E 906 - Test Method for Heat and Visible Smoke Release Rates for Materials and Products.
- R. ASTM G 23 - Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.
- S. NCCA 11-18 - Cure Test.
- T. UBC 17-6 - Multi-Story Fire Evaluation.
- U. UBC 26-3 - Interior Room Corner Burn Test.
- V. UBC 26-8 - Intermediate Scale Multi-Story Fire Test for Rout and Return and Continuous Edge Grip Reynobond Systems.

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#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's catalog data, detail sheets, and specifications.
- C. Shop Drawings: Prepared specifically for this project, not less than one-half size; show panel system including attachment methods, joinery, sealing methods, and accommodation of thermal movement.
- D. Samples: Each custom color.
- E. Certification: Affidavit certifying that panels meet or exceed requirements specified.

#### 1.5 QUALITY ASSURANCE

- A. Panel Fabricator and Installer: Acceptable to panel manufacturer.
- B. Painted Surfaces of Composite Panels: Meeting all criteria printed in manufacturer's literature.
- C. Furnish calculations confirming structural adequacy.
- D. Where possible, take field measurements before completion of shop fabrication.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect panel finish and edges per panel manufacturer's recommendations.
- B. Store material in accordance with panel manufacturer's recommendations.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Reynolds Metals Company, Architectural Products Division, P.O. Box 27003,

Richmond, VA 23261; ASD. Tel: (804) 281-4186, Fax: (804) 281-3602; Internet: www.rmc.com

- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. Substitutions: Not permitted.
- D. Provide all composite panels from a single manufacturer.

## 2.2 MATERIALS, ALUMINUM COMPOSITE PANELS

- A. Panels: "Reynobond(R) FR" Fire Resistant panels, manufactured by Reynolds Metals Company, furnished by a dealer/distributor approved by the manufacturer.
  - 1. Class A building material classification per ASTM E 84.
  - 2. Meeting or exceeding all Model Code requirements for fire safety.
  - 3. Meeting the following test requirements:
    - a. RB200FR Core Material: Flame spread 15, smoke developed 30, per ASTM E 84.
    - b. UBC 17-6 - Multi-Story Fire Evaluation.
    - c. ASTM E 108 Modified (and damaged).
    - d. ASTM D 2015 (core only): Less than 6,000 BTU/square foot.
    - e. University of Pittsburgh Toxicity Test.
    - f. UBC 26-8 - Intermediate Scale Multi-Story Fire Test for Rout and Return and Continuous Edge Grip Reynobond Systems.
    - g. UBC 26-3 - Interior Room Corner Burn Test.
    - h. ASTM E 162 Surface Flammability of Materials Using a Radiant Heat Energy Source.
    - i. ASTM D 903 Method for Peel or Stripping Strength of Adhesive Bonds.
  - 4. Thickness: RB200FR, 0.197 inch (5 mm).
  - 5. Thickness: RB160FR, 0.157 inch (4 mm).
  - 6. Weight: RB200FR, 2.02 pounds/square foot (9.86 kg/square m).
  - 7. Weight: RB160FR, 1.63 pounds/square foot (7.96 kg/square m).
- B. Panels: "Reynobond(R) PE" panels, manufactured by Reynolds Metals Company, furnished by a dealer/distributor approved by the manufacturer, meeting the following requirements:
  - 1. Class A building material classification per ASTM E 84: flame spread 15, smoke developed 120, with a

center panel joint; flame spread 0, smoke developed 0, with no joint.

2. ASTM E 108 Modified.
3. ASTM D 635 Rate of Burning Evaluation on Plastic.
4. ASTM E 906 Heat and Visible Smoke Release Rates
5. Thickness: RB160PE, 0.157 inch (4 mm).
6. Thickness: RB240PE, 0.236 inch (6 mm).
7. Weight: RB160PE, 1.12 pounds/square foot (5.47 kg/square m).
8. Weight: RB240PE, 1.49 pounds/square foot (7.27 kg/square m).

C. Finishes:

1. Colorweld 300 fluoropolymer coating utilizing 70 percent Kynar 500 resins.
  - a. Color: Selected by Architect from manufacturer's standard or custom colors.
  - b. Factory-apply coating on a continuous process paint line, consisting of approximately 0.2 mil (5 micrometers) prime coat and approximately 0.8 mil (20 micrometers) finish coat containing 70 percent Kynar resins; nominal dry film thickness of 1.0 mil (25 micrometers).
  - c. Specular Gloss: 20-30 at 60 degrees.
2. Colorweld 300XL fluoropolymer coating utilizing 70 percent Kynar 500 resins.
  - a. Color: Selected by Architect from manufacturer's standard or custom colors.
  - b. Factory-apply coating on a continuous process paint line, consisting of approximately 0.2 mil (5 micrometers) barrier prime coat, approximately 0.8 mil (20 micrometers) metallic/color coat containing 70 percent Kynar resins, and approximately 0.5 mil (13 micrometers) clear coat containing 70 percent Kynar resins; nominal dry film thickness of 1.5 mils (38 micrometers).
  - c. Specular Gloss: 25-35 at 60 degrees.
3. Pencil Hardness: HB-H minimum (Eagle Turquoise), per ASTM D 3363.
4. Impact Adhesion: Showing no cracking and no loss of adhesion, per ASTM D 2794.
5. Cure Test: Withstand 50+ double rubs of MEK soaked cloth, per NCCA 11-18.
6. Humidity Resistance: Showing no blisters after 3,000 hours of 100 percent humidity at 95 degrees F (35 degrees C), per ASTM D 2247.

7. Salt Spray Resistance: Scored sample showing none or few No. 8 blisters and less than 1/8 inch average creepage from scribe after 3,000 hours of exposure to 5 percent salt fog at 95 degrees F (35 degrees C), per ASTM B 117.
8. Salt Spray Resistance: Scored sample showing none or few No. 8 blisters and less than 1/16 inch average creepage from scribe after 3,000 hours of exposure to 5 percent salt fog at 95 degrees F (35 degrees C), per ASTM B 117.
9. Weatherometer Test (ASTM D 822/G 23): Showing no cracking, peeling, blistering, or loss of adhesion after 2,000 hours.
  - a. Chalking Resistance: No chalk greater than No. 8 after 10 years Florida exposure at 45 degrees South, per ASTM D 4214.
  - b. Color Change: Not exceeding 5 NBS units after 10 years Florida exposure at 45 degrees South, per ASTM D 2244.
  - c. Chalking and Color Change: No objectionable chalking or color change after 5,000 hours in Atlas Weatherometer.
10. Abrasion Resistance: Resistance to minimum 65+/- liters per mil of falling sand, per ASTM D 968.

### 2.3 ACCESSORIES

- A. Exposed Fasteners: Self-tapping 300 Series stainless steel.
- B. Self-Drilling Fasteners: Protected with a corrosion-resistant finish.
- C. Sealants: Compatible with panel materials.

### 2.4 PANEL FABRICATION

- A. Composition: Thermoplastic compound core sandwiched between two aluminum sheets formed by a continuous process.
  1. Bond Integrity: Minimum 40 inch-pounds/inch (peel strength), per ASTM D 1781 and ASTM C 481, Cycle B.
- B. Aluminum Face Sheets: 3105 H25 aluminum alloy.
  1. Thickness: 0.028 inch (0.71 mm)
  2. Thickness: 0.020 inch (0.51 mm)

- C. Tolerances:
  - 1. Panel Bow: Maximum 0.8 percent of panel overall width or length dimension.
  - 2. Panel Dimensions: Allowance for field adjustment and thermal movement.
  - 3. Panel Lines, Breaks, and Curves: Sharp, smooth, free of warps or buckles.
  - 4. Flatness: Visually flat.
- D. Panel Surfaces: Free of scratches or marks caused during fabrication.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Panel Substructure:
  - 1. Level and plumb.
  - 2. Structurally sound as determined by Architect.
  - 3. Free of defect detrimental to work and erected in accordance with established building tolerances.
- B. Installer shall inspect substructure and shall not proceed with panel erection until deviations are corrected.

### 3.2 INSTALLATION

- A. Erect panels level and plumb, in proper alignment and relation to substructure framing and established lines.
- B. Erect panels in accordance with approved shop drawings.
- C. Maximum Deviation of Erected Panels from Vertical or Horizontal Alignment: 1/4 inch in 20 feet (6 mm in 6 m).
- D. Anchor panels structurally sound and per engineering recommendations, if required.
- E. Aluminum in Contact with Dissimilar Materials:
  - 1. Apply bituminous paint or install calking tape to insulate dissimilar materials.
  - 2. Factory-applied protective paint or G-90 galvanized steel is considered adequate insulation.

### 3.3 ADJUSTING AND CLEANING

- A. Replace panels that have received irreparable damage.
- B. Repair panels with minor damage.
- C. Clean foreign material from panel gutter system when applicable.
- D. Remove strippable film (if used) as soon as possible after surrounding material has been installed and glass above has been washed.

END OF SECTION