SECTION 050513
FACTORY-APPLIED (BAKED ON) COATINGS FOR METAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Factory-applied architectural coatings for metal.

1.02 RELATED REQUIREMENTS

A. Section 057300 - Decorative Metal Railings.
B. Section 057500 - Decorative Formed Metal.
C. Section 074113 - Metal Roof Panels.
D. Section 074213 - Metal Wall Panels.
E. Section 076100 - Sheet Metal Roofing.
F. Section 076200 - Sheet Metal Flashing and Trim.
G. Section 077100 - Roof Specialties.
H. Section 083323 - Overhead Coiling Doors.
I. Section 083326 - Overhead Coiling Grilles.
J. Section 084126 - All-Glass Entrances and Storefronts.
K. Section 084229 - Automatic Entrances.
L. Section 084233 - Revolving Door Entrances.
M. Section 084313 - Aluminum-Framed Storefronts.
N. Section 084413 - Glazed Aluminum Curtain Walls.
O. Section 085113 - Aluminum Windows.
P. Section 086300 - Metal-Framed Skylights.
Q. Section 089100 - Louvers.
R. Section 105113 - Metal Lockers.
S. Section 133419 - Metal Building Systems.
T. Other _____.

1.03 REFERENCE STANDARDS

A. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
D. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus; 2019.
E. ASTM D1005 - Standard Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers; 2020.
F. ASTM D1654 - Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments; 2024.
G. ASTM D2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates; 2025.

H. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity; 2025.

I. ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test; 2022.

J. ASTM D4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films; 2023.

K. ASTM D4585/D4585M - Standard Practice for Testing Water Resistance of Coatings Using Controlled Condensation; 2018.

L. ASTM D7091 - Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals; 2022.

M. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces; 2011 (Reapproved 2019).

N. ASTM G85 - Standard Practice for Modified Salt Spray (Fog) Testing; 2019.

O. USGBC LEED-NC - LEED Green Building Rating System for New Construction and Major Renovations; 2016.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturer’s product data for each coating system specified, including:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. liquid fluoropolymer).
   2. Type of substrate appropriate for each coating.
   3. AAMA compliance.
   4. Dry film thickness of each coat of each product type.
   5. Total dry film thickness.
   6. Physical properties.
   7. Accelerated test data.
   8. Field performance.
   9. Manufacturer's application requirements.

C. Samples: Submit for verification and selection, two manufacturer’s samples 3 inch x 3 inch of each color and gloss specified and each material to be coated.

D. Test and Evaluation Reports: Submit reports indicating conformance with physical properties specified and requirements of AAMA 2605.

E. Manufacturer’s Certification: Certify products meet or exceed specified requirements and are suitable for project specific substrates.

F. Sustainability Submittals:
   1. LEED v4.1
      a. Product Test Reports for Credit SS 7.2 - For metal roof panel coatings to document compliance with solar reflectance index requirement.
   2. LEED v5
      a. Heat Island Reduction: Product Test Reports for Credit SSc5 - For metal panel coatings to document compliance with solar reflectance index requirement.
      b. Heat Island Reduction with Cool Walls: Product Test Reports for Credit SSpc154 – For metal panel coatings to document compliance with solar reflectance index requirements.
   3. Manufacturer's Certificate: Certify that high-performance coatings comply with VOC limits specified.

G. Manufacturer's Qualification Statement.

H. Applicator Qualification Statement.

I. Applicators Project References:
   1. Submit list of recently completed factory-applied coating system projects, including project name and location, date of substantial completion, name of Architect, type of metal products receiving factory-applied coating systems, and type and quantity of factory-applied coating systems applied.

J. Maintenance Data: Include cleaning procedures, graffiti removal instructions, and field touch-up procedures.

K. Specimen warranty.

L. Executed warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Company specializing in manufacturing the Products specified in this section with a minimum of 10-years experience in the manufacturing of factory-applied coating systems.

B. Applicator's Qualifications: Company specializing in performance of the work of this section with a minimum of _____-years documented experience in application of factory-applied coating systems of similar type to those specified and approved by coatings manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Coating systems should arrive in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
   1. Coating system name.
   2. Manufacturer.
   3. Color.
   4. Weight.
   5. Gallons.
   6. Batch number.

C. Store and handle coating systems in accordance with manufacturer's written instructions.
   1. Store in manufacturer's original, unopened containers and packaging until factory application.
   2. Store at a minimum ambient temperature of _____ Degrees F and a maximum of _____ Degrees F, in ventilated areas and as required by manufacturer.

D. Protect coating systems during storage, handling, and factory application to prevent contamination or damage.

E. Protect metal product and finish in accordance with related metal specification section and from contact with materials that could damage or adversely affect factory-applied coating systems.

F. Protect metal product finish with temporary protective coverings until after installation.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer's Warranty: **[10-years] [20-years] [__-years]** from date of Substantial Completion.

C. Applicator's Work and Finish Warranty:
   1. Correct defective Work or finish deterioration with a 5-year period after date of Substantial Completion.
   2. Deterioration includes, but is not limited to:
      a. Solid Colors: Color fading in excess of 5 delta E Hunter color units in accordance with ASTM D2244.
      b. Peeling, checking, or cracking of coating adhesion to metal.
      c. Chalking in excess of a No. 8 in accordance with ASTM D4214, Method A.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The Sherwin-Williams Company; www.sherwin-williams.com.

B. Provide liquid coatings from single source manufacturer to ensure pigment and resin match across all factory finished products.

C. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. For Factory Applied Coatings to Metal Roof Panels:
   1. LEED v4: 82 initial SRI and 64 aged SRI for slopes 2:12 or less (low slope) and 39 initial SRI and 32 aged SRI for slopes greater than 2:12 (steep slope).
   2. LEED v5 Sustainable Sites Heat Island Reduction – Solar Reflective Index (SRI): Provide metal roof panel coatings with 82 initial SRI and 64 aged SRI for slopes 2:12 or less (low slope) and 39 initial SRI and 32 aged SRI for slopes greater than 2:12 (steep slope) in accordance with ASTM E1980.
   3. LEED v5 Sustainable Sites Heat Island Reduction with Cool Walls – Surface at least 60% of gross exterior wall area (including vertical fenestration) with initial Solar Reflectance of 0.60 and exhibit initial thermal emittance of 0.75.

2.03 FACTORY-APPLIED, HIGH-PERFORMANCE ORGANIC FINISH MATERIALS – ALUMINUM EXTRUSIONS

A. AAMA 2605: Liquid Fluoropolymer Aluminum Extrusion Coatings - minimum 70 percent PVDF resin by weight, in color coat **[and clear topcoat]**.
   1. Pencil Hardness, ASTM D3363: F minimum.
   2. Prohesion, ASTM G855: 2,000 hours.
   3. Humidity Resistance, ASTM D2247: 4,000 hours.
   4. South Florida Exposure:
      a. Color, ASTM D2244.
      b. Chalk, ASTM D4214, Method A.
   5. Dry Film Thickness, ASTM D7091: **[Fluropon] [Fluropon Classic II] [Fluropon Effects Rustica] [Fluropon FP] [Fluropon SR]**.
      a. Primer Coat: 0.20 to 0.50 mil.
      b. Color Coat: 1.00 to 1.50 mil.
      c. Total Thickness: 1.20 to 2.00 mil.
   6. Dry Film Thickness, ASTM D7091: **[Fluropon Classic] [Fluropon Premiere]**.
      a. Primer Coat: 0.200 to 0.50 mil.
      b. Color Coat: 1.00 to 2.00 mil.
      c. Clear Topcoat: 0.30 to 0.50 mil.
      d. Total Thickness: 1.50 to 3.00 mil.
   7. Dry Film Thickness, ASTM D7091: **[Fluropon Effects Kameleon] [Fluropon Effects Nova]**.
      a. Primer Coat: 0.20 to 0.50 mil.
      b. Base Coat: 1.00 to 1.50 mil.
      c. Effect Coat: 0.80 to 1.30 mil.
      d. Total Thickness: 2.00 to 3.20 mil.
   8. Product:
      a. Fluropon; www.sherwin-williams.com
      b. **[Fluropon Classic].**
      c. **[Fluropon Classic II].**
      d. **[Fluropon Effects Kameleon].**
      e. **[Fluropon Effects Nova].**
      f. **[Fluropon Effects Rustica].**
      g. **[Fluropon Premiere].**

h. **[Fluropon FP]**
i. **[Fluropon SR].**
j. Substitutions: See Section 016000 - Product Requirements.

B. AAMA 2605: Liquid Fluoropolymer Aluminum Extrusion Coatings - FEVE resin.
1. Pencil Hardness, ASTM D3363: F minimum.
2. Humidity Resistance, ASTM D2247: 4,000 hours.
3. South Florida Exposure:
a. Color, ASTM D2244.
b. Chalk, ASTM D4214, Method A.
4. Dry Film Thickness, ASTM D7091:
a. Primer Coat: 0.20 to 0.40 mil.
b. Color Coat: 1.0 to 1.30 mil.
c. Optional Clear Coat 0.30 to 0.50 mil.
d. Total Thickness: 1.50 to 2.20 mil.
5. Product:
a. Illumipon.
b. Substitutions: See Section 016000 - Product Requirements.

C. AAMA 2604: Liquid Fluoropolymer Aluminum Extrusion Coatings - minimum 50 percent PVDF resin by weight, in color coat.
1. Pencil Hardness, ASTM D3363: F minimum.
2. Humidity Resistance, ASTM D2247 or ASTM D4585/D4585M: 3,000 hours.
3. Dry Film Thickness, ASTM D7091:
a. Primer Coat: 0.20 to 0.40 mil.
b. Color Coat: 1.00 to 1.70 mil.
c. Total Thickness: 1.20 to 1.90 mil.
4. Product:
a. **[Acrodize].**
b. **[Acroflur].**
c. Substitutions: See Section 016000 - Product Requirements.

D. AAMA 2604: Liquid Super Durable Polyester Aluminum Extrusion Coatings
1. Pencil Hardness, ASTM D3363: H-3H.
2. Humidity Resistance, ASTM D2247: 3,000 hours.
3. Dry Film Thickness, ASTM D7091:
a. Primer Coat: 0.20 to 0.40 mil.
b. Color Coat: 1.00 to 1.20 mil.
c. Total Thickness: 1.20 to 1.60 mil.
4. Product:
a. Super Dynapon
b. Substitutions: See Section 016000 - Product Requirements.

E. AAMA 2603: Liquid Acrylic and Polyester One-Coat Finish
1. Pencil Hardness, ASTM D3363: H minimum.
2. Salt Spray Resistance, ASTM B117: 1,500 hours.
3. Humidity Resistance, ASTM D2247: 1,500 hours.
4. Dry Film Thickness, ASTM D7091: 0.80 to 1.40 mil.
5. Product:
a. **[Acrylicoat].**
b. **[Flurocryl].**
c. **[Polylure 1500].**
d. **[Polylure 3500].**
e. **[Polylure 4000].**
f. Substitutions: See Section 016000 - Product Requirements.

2.04 FACTORY-APPLIED, HIGH-PERFORMANCE ORGANIC FINISH MATERIALS – COIL COATINGS

A. AAMA 2605: Liquid Fluoropolymer Sheet Coil Coatings - minimum 70 percent PVDF resin by weight, in color coat **[and clear topcoat]**.
   1. Pencil Hardness, ASTM D3363: HB to H.
   2. Salt Spray Resistance, ASTM G85: 4,000 hours.
   3. Humidity Resistance, ASTM D2247: 4,000 hours.
   4. South Florida Exposure:
      a. Color, ASTM D2244.
      b. Chalk, ASTM D4214, Method A.
   5. Dry Film Thickness, ASTM D7091: **[Fluropon] [Fluropon Classic II] [Fluropon FP] [Fluropon SR]**.
      a. Primer Coat: 0.20 to 0.40 mil.
      b. Color Coat: 0.70 to 0.90 mil.
      c. Total Thickness: 0.90 to 1.30 mil.
   6. Dry Film Thickness, ASTM D7091: **[Fluropon Classic] [Fluropon Premiere] [Flurothane]**.
      a. Primer Coat: 0.20 to 0.40 mil.
      b. Color Coat: 0.70 to 0.90 mil.
      c. Clear Coat: 0.40 to 0.50 mil.
      d. Total Thickness: 1.30 to 1.60 mil.
   7. Dry Film Thickness, ASTM D7091: **[Fluropon Effects Kameleon] [Fluropon Effects Nova]**.
      a. Primer Coat: 0.20 to 0.50 mil.
      b. Base Coat: 1.00 to 1.50 mil.
      c. Effect Coat: 0.80 to 1.30 mil.
      d. Total Thickness: 2.00 to 3.20 mil.
   8. Product:
      a. **[Fluropon].**
      b. **[Fluropon Classic].**
      c. **[Fluropon Classic II].**
      d. **[Fluropon Effects Kameleon].**
      e. **[Fluropon Effects Nova].**
      f. **[Fluropon Effects Rustica].**
      g. **[Fluropon Extreme].**
      h. **[Fluropon FP]**
      i. **[Fluropon SR].**
      j. **[Flurothane].**
      k. Substitutions: See Section 016000 - Product Requirements.

B. AAMA 2605: Liquid Fluoropolymer Sheet Coil Coatings - FEVE resin.
   1. Pencil Hardness, ASTM D3363: HB to H.
   2. Humidity Resistance, ASTM D2247: 4,000 hours.
   3. South Florida Exposure:
      a. Color, ASTM D2244.
      b. Chalk, ASTM D4214, Method A.
   4. Dry Film Thickness, ASTM D7091:
      a. Primer Coat: 0.40 to 0.50 mil.
      b. Color Coat: 0.70 to 0.90 mil.
      c. Optional Clear Coat: 0.30 to 0.40 mil.
      d. Total Thickness: 1.10 to 1.70 mil.
   5. Product:
      a. Illumipon.

b. Substitutions: See Section 016000 - Product Requirements.

C. AAMA 2603: Liquid Polyester Finish
1. Pencil Hardness, ASTM D3363: F-2H.
2. Salt Spray Resistance, ASTM D1654: 1,000 hours.
3. Humidity Resistance, ASTM D2247: 2,000 hours.
4. Dry Film Thickness, ASTM D1005:
a. Primer Coat: 0.15 to 0.40 mil.
b. Color Coat: 0.50 to 0.85 mil.
c. Optional Clear Coat: 0.35 to 0.45 mil.
d. Total Film Thickness: 0.65 to 1.70 mil.
5. Product:
a. PolyPREMIER
b. Substitutions: See Section 016000 - Product Requirements.

2.05 FACTORY FINISHING METHODS

A. Pretreatment: Mechanically clean and chemically pretreat metal fabricated items in accordance with requirements of the specified coating system:

B. Coating Application: Apply coatings in accordance with requirements of the specified coating system.

2.06 FACTORY FINISHING QUALITY CONTROL

A. Tests and Inspections: Perform physical property testing as required by manufacturer's written product data.

2.07 FACTORY-APPLIED COATINGS SCHEDULE

A. High-Performance Organic Finish for Aluminum Extruded Items: **[2-coat] [3-coat]** fluoropolymer finish, **[AAMA 2604] [AAMA 2605]**.
1. Metal Products to be Coated:
a. _____.
b. _____.
c. _____.
2. Color: **[Matched approved custom sample] [As selected from manufacturer's full range] [As scheduled] [_____]**.
3. Gloss: **[Low, less than 20] [Medium, 20 to 79] [High, 80 and above] [Match approved custom sample] [As selected from manufacturer's full range] [As scheduled]**.

B. High-Performance Organic Finish for Aluminum Sheet Items: **[2-coat] [3-coat]** fluoropolymer finish, AAMA 2605.
1. Metal Products to be Coated:
a. _____.
b. _____.
c. _____.
2. Color: **[Matched approved custom sample] [As selected from manufacturer's full range] [As scheduled] [_____]**.
3. Gloss: **[Low, less than 20] [Medium, 20 to 79] [High, 80 and above] [Match approved custom sample] [As selected from manufacturer's full range] [As scheduled]**.

PART 3 EXECUTION - NOT USED

END OF SECTION