SECTION 05 05 13
COIL COATED STEEL

****NOTE TO SPECIFIER****
This guide specification for Steelscape® coated steel products in coil or flat sheet form is provided by Steelscape LLC as a supporting document for development of an office master specification or specifications for a project. Edit this guide specification to meet project requirements; coordinate with other specification sections as required. Revise numbers and titles to reflect actual sections in Project Manual.

Steelscape LLC is solely responsible for the content contained in this document. For more information on this guide specification or products detailed within, contact Manufacturer at 360-673-8660, via email at shelby.courtney@steelscape.com, or on the web at www.steelscape.com.

PART 1 GENERAL

1.1 SECTION INCLUDES
- A. Graffiti-Resistant Finishes

1.2 RELATED SECTIONS
- A. Section 07 41 13 – Metal Roof Panels
- B. Section 07 42 13 – Metal Wall Panels
- C. Section 07 61 00 – Sheet Metal Roofing
- D. Section 07 71 23 – Manufactured Gutters and Downspouts

1.3 REFERENCES
- A. ASTM A568 – Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for Steel Sheet in Coils and Cut Lengths.
- B. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. ASTM A792 – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- D. ASTM A924 – Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- E. ASTM B117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
- F. ASTM C267 – Standard Test Methods for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacings and Polymer Concretes.
- G. ASTM C1371 – Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
- H. ASTM C1549 – Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
- I. ASTM D523 – Standard Test Method for Specular Gloss.
- J. ASTM D714 – Standard Test Method for Evaluating Degree of Blistering of Paints.
- K. ASTM D968 – Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.

L. ASTM D1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
M. ASTM D2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
N. ASTM D2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
O. ASTM D2248 – Standard Practice for Detergent Resistance of Organic Finishes.
P. ASTM D2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
Q. ASTM D3359 – Standard Test Methods for Measuring Adhesion by Tape Test.
R. ASTM D3363 – Standard Test Method for Film Hardness by Pencil Test.
S. ASTM D4145 – Standard Test Method for Coating Flexibility of Prepainted Sheet.
T. ASTM D4214 – Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
U. ASTM D5402 – Standard Practice for Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs.
V. ASTM D5796 – Standard Test Method for Measurement of Dry Film Thickness of Thin-Film Coil-Coated Systems by Destructive Means Using a Boring Device.
W. ASTM E1980 – Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
X. ASTM G154 – Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials.
Y. Kesternich Test – Test to simulate acid rain conditions by subjecting test specimens to a sulfur dioxide atmosphere as well as condensing moisture for the purpose of evaluating rust/corrosion characteristics.

1.4 SUBMITTALS
A. Submit under provisions of Section 01 30 00 – Administrative Requirements.
B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of colors and patterns.
D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, to represent actual product, color, and patterns.
E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 WARRANTY
A. Refer to Manufacturer website for current warranties.

PART 2 PRODUCTS

2.1 MANUFACTURERS
A. Acceptable Manufacturer: Steelscape, located at: 222 W. Kalama River Rd., Kalama, WA 98625-9420; Telephone: 360-673-8660; Email: shelby.courtney@steelscape.com; Web: www.steelscape.com.
B. Substitutions: Not permitted.
C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements.

2.2 GRAFFITI-RESISTANT FINISHES

A. Graffiti-Resistant Finish: Pre-painted graffiti-resistant coating system includes a primer, color coat, and graffiti-resistant clear coat. Factory applied on steel or aluminum coils with interior and exterior applications. Provided with G90 or AZ50 metallic coating weight, 0.0140" to 0.0296" thickness, and width up to 49".

1. Performance:
   a. Substrate: TruZinc® (HDG) ASTM A653 or ZINCALUME® Metallic Coated Steel ASTM A792.
   b. Finish: Low gloss, medium gloss, and high gloss clear coatings. Consult Steelscape for additional information.
   c. Paint System: Duranar® GR or Coraflon® GR fluorocarbon
   d. Dry Film Thickness: ASTM D5796
      1) Top System
         a. Primer: 0.15 – 0.30 mil.
         b. Finish: 0.70 – 0.80 mil.
         c. GR Clear: 0.45 – 0.55 mil.
      2) Bottom System
         a. Primer: 0.15 – 0.25
         b. Backer: 0.30 – 0.40
   e. Specular Gloss: 60° Specular Gloss: 20° – 80°, ASTM D523.
   f. Pencil Hardness: F – H, ASTM D3363.
   g. T-Bend Flexibility: 0T – 1T no tape off, ASTM D4145.
   h. Chemical Resistance: 10% Muriatic Acid for 15 minutes, no effect, 25% NaOH, for 1 hour, no effect, ASTM D1308.
   i. Reverse Impact: ASTM D2794.
      1) Steel 3.0 x metal thickness, no tape off.
      2) Aluminum 1.5 x metal thickness, no tape off.
   j. Humidity Resistance: 1,000 hours, 100% RH @ 95° F, none, up to few #8 field blisters, ASTM D714, ASTM D2247.
   k. Color Change: 10 years at 45°, South Florida, maximum 5 NSB units color change, < 0.01 mils/year film erosion, ASTM D2244.
2. Gloss Ranges:
   a. Low Gloss Graffiti-Resistant Coating (10 – 15)
      1) Product Code 17394
   b. Medium Gloss Graffiti-Resistant Coating (25 – 35)
      1) Product Code 17395
   c. Medium Gloss Graffiti-Resistant Coating (50 – 70)
      1) Product Code 17396
   d. High Gloss Graffiti-Resistant Coating (80+)
      1) Product Code 17392

PART 3 EXECUTION

3.1 FABRICATION

A. Fabricate components in accordance with manufacturer's instructions.

3.2 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify architect of unsatisfactory preparation before proceeding.

3.3 STORAGE

A. Stack the product on wood or metal skids so the product is not in contact with the ground and elevate one end of each bundle to allow any moisture to run off rather than puddle on the top or between nested panels.
B. Use under-roof storage whenever possible. If the product must be stored in the open on bare ground, a plastic ground cover should be used under the product to minimize condensation on the sheets from moisture in the soil.
C. Remove plastic or paper packaging upon arrival, if storage area is heated and dry. If the material is wet, the sheets should be wiped dry. Wet coils should be scheduled into production as soon as possible.
D. Avoid using plastic material for covering. Non-breathing materials should not be used to shroud product because they tend to trap moisture. Use only dry, untreated lumber spacers for block stacking.
E. Store product at an even temperature above the dew point with adequate air circulation to prevent condensation problems.

3.4 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. General Installation Guidelines:
    1. Allowance for Expansion: All roofing and cladding will expand and contract with changes in temperature. Fastening/Fastener attachment systems used must accommodate the expansion to avoid problems of "canning", ponding or roof noise. Expansion tables are usually available from the panel manufacturer.
    2. Handling: Handle panels carefully. Do not drag or slide sheets over other products or rough surfaces. Equipment and materials placed on the roof should be clean and care taken to prevent damage to the surface. Long panels are best lifted with the aid of a lifting boom. Flat, rubber soled footwear should be worn when walking on a roof. Shoes should be cleaned before going up on the roof.
    3. Laying: Sheets should be installed with overlaps away from the weather. End laps on profiled metal roofing should be avoided where possible. End lap of metallic coated steel and painted profiles should be sealed with a double bead of sealant.
    4. Marking, Cutting & Drilling: Black lead pencils should never be used for marking ZINCALUME® Steel products as the carbon in the pencil will promote corrosion which will etch the surface leaving a permanent mark. Use any other color pencil but black. Cut and drill pre-painted steel with care to avoid marking the high quality surface. Use a hand shear or nibbler instead of a friction blade to avoid damaging the metallic coated steel or paint coating. Remove all debris and metal filings as soon as possible.
    5. Fasteners: Placement, Size, Type, Life Expectancy and Compatibility: Responsibility for selection of suitable long-lasting fasteners and sealants rests solely with the Buyer.
        a. The use of nails is not advised for roofing and siding profiles. Screw type fasteners with washers are recommended and have been proven to have 2 to 3 times the holding power of nails.
        b. Larger washers are necessary when hurricane conditions apply to the location. This prevents screws being pulled through sheeting under high lift forces.

c. Fasteners used for external fixing of roofing and siding products must be compatible with Metallic Coated Steel and have a life expectancy comparable with the Metallic Coated Steel panel. Refer to the Galvanic Series to ensure compatibility.
d. There are some fasteners on the market with only minimal corrosion protection. These will quickly rust and present an unsightly appearance. Fasteners made of some alloy materials are highly corrosion resistant in their own right but a galvanic couple may occur when they are in contact with metallic coated steel. This may cause and increased rate of corrosion of the steel around the fasteners. Screw manufacturers/suppliers and metallic coated steel manufacturer should be consulted to ensure correct usage.

6. A clear or tinted clear strippable vinyl film may be applied to the coated metal surface prior to roll forming or fabrication. This protective film should remain on the panel through forming and transit, to be removed immediately before or after installation.
7. Contact with wet cement should be avoided.

C. Compatibility of Accessories Including Flashing and Sealants: The mix of dissimilar metals or materials will significantly affect service life. Sealants containing amine or acetic acid should never be used. High quality sealants, such as neutral cure silicones, provide good performance in most applications. Responsibility for selection of suitable long-lasting fasteners and sealants rests solely with the Buyer.

D. Maintenance Procedures to Contribute to Long Life:
1. The following roof maintenance should be performed regularly or per warranty requirements:
a. Check panels, rain gutters, and downspouts to ensure they are clear and allow free drainage of rainwater from the roof. Valley gutters and grates should also be cleaned.
b. Inspect and clean areas under eaves and wall/soffit areas under overhangs that are not washed by rain.
c. Remove accumulations of leaves, branches and other debris at ridge caps and in corners.
d. Check the condition of auxiliary equipment such as air conditioner supports, drains and housings. Any exposed metal susceptible to rust or that which has rusted should be painted with a rust inhibiting coating.
e. Remove trash thrown on the roof likely to clog drains or cause silt buildup.
2. Regular cleaning of surfaces, and the removal of accumulated debris such as leaves, dirt, pollution fallout, etc., will help prevent the setting up of localized areas where accelerated corrosion might occur.
3. Corrosive environments, such as close proximity to saltwater, can be particularly aggressive to metallic coated products. More frequent cleaning and maintenance is required.

3.5 CLEAN-UP

A. After erection, roof panels and gutters should be swept to remove dirt and debris such as unused fasteners, metal filings, pop-rivet stems, and pieces of flashing. The shank of a fastener left lying on a roof will rust very quickly and will run down onto the panel causing an unsightly stain. The process of cutting roof and wall sheeting to size with discs, or drilling to fix with fasteners, can create debris which is unsightly and can create localized corrosion and shorten the service life.

B. Mud and dirt tracked onto the roof panels, and greasy hand and foot prints, can be removed by washing with a cleaner consisting of 1/3 cup mild detergent (e.g. Tide) in one gallon of water applied with a mop or soft broom. The roof should be then thoroughly rinsed with water. High pressure spray applications and strong alkaline detergents should not be used. If washing with a detergent solution is found to be inadequate, solvents such as mineral spirits can be used to remove more stubborn stains. More aggressive and highly volatile solvents such as acetone or toluene should be avoided for safety reasons, as well as their incompatibility with many paint systems used on building panels. The compatibility of any solvent on paint should be tested or known prior to its use.

3.6 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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