SECTION 055913 - METAL BALCONIES

TIPS:

To view non-printing **Editor's Notes** that provide guidance for editing, click on MasterWorks/Single-File Formatting/Toggle/Editor's Notes.

To read **detailed research, technical information about products and materials, and coordination checklists**, click on MasterWorks/Supporting Information.

Access Manufacturer's Specpoint Product Cards:

<Double click here to view the manufacturer's product cards available at Deltek Specpoint>

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Prefabricated aluminum balconies.

B. Related Requirements:

1. Section 057300 "Decorative Metal Railings" for railings not components of the prefabricated balconies.
2. Section 061000 "Rough Carpentry" for wood blocking for anchoring balconies.
3. Section 092216 "Non-Structural Metal Framing" for metal backing for anchoring balconies.

1.2 DEFINITIONS

A. Balconies: Prefabricated or site-built platforms that are connected to the side of a building and surrounded by a railing.

B. Railings: Guards, handrails, and similar devices used for protection of occupants at open-sided floor areas and for pedestrian guidance and support, visual separation, or wall protection.

1.3 COORDINATION AND SCHEDULING

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible.

B. Coordinate installation of anchorages for balconies. Furnish drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver items to Project site in time for installation.

C. Schedule installation so wall attachments are made only to completed walls. Do not support balconies temporarily by any means that do not meet structural performance requirements.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at ASD offices or Microsoft Teams.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Manufacturer's product lines of prefabricated balconies.
2. Manufacturer's product lines of railings assembled from standard components.

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

C. Shop Drawings:

1. Include plans, elevations, sections, and attachment details.

D. Samples for Initial Selection: For products involving selection of color, texture, or design[**, including mechanical finishes**].

E. Samples for Verification: For each type of exposed finish required.

1. Sections of each distinctly different linear railing member, including top rails and posts.

2. Fittings and brackets.
3. Assembled Samples of balcony railing systems, made from full-size components, including top rail, post, handrail, and infill. Show method of finishing members at intersections. Samples need not be full height.

F. Delegated Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For [**professional engineer**] [**testing agency**].

B. Welding certificates.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, in accordance with ASTM E894 and ASTM E935.

D. Preconstruction test reports.

1.7 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:

1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: [**Owner will engage**] [**Engage**] a qualified testing agency to perform preconstruction testing on laboratory mockups. Payment for these services will be made [**by Owner**] [**from the testing and inspecting allowance, as authorized by Change Orders**] [**by Contractor**]. Retesting of products that fail to meet specified requirements to be done at Contractor's expense.

1. Build laboratory mockups at testing agency facility; use personnel, materials, and methods of construction that will be used at Project site.
2. Test railings in accordance with ASTM E894 and ASTM E935.
3. Notify Architect [**seven**] <**Insert number**> days in advance of the dates and times when laboratory mockups will be tested.

1.9 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with balconies by field measurements before fabrication and indicate measurements on Shop Drawings. Field measurements/verifications are to be performed by the installer in the field if required.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of balcony from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design <**Insert product or system**>.

B. General: In engineering balconies and railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:

1. Aluminum: The lesser of minimum yield strength divided by 1.65 or minimum ultimate tensile strength divided by 1.95.

C. Structural Performance:

1. Balcony Platform:

a. Uniform load of 60 lbf/sq. ft. (293 kg/sq. m).
b. Point load of <**Insert lb (kg)**>.

2. Railings, including attachment to building construction, to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

a. Uniform load of 50 lbf/ft. (0.73 kN/m) applied in any direction.
b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
c. Uniform and concentrated loads need not be assumed to act concurrently.

3. Railing Infill:

a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
b. Infill load and other loads need not be assumed to act concurrently.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on balconies and railings by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: [**120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces**] <**Insert temperature change**>.

2.3 METAL BALCONIES <**Insert drawing designation**>

A. Prefabricated Aluminum Balconies:

1. Basis-of-Design Product: Subject to compliance with requirements, provide American Structures & Design, Inc.; Extruded Aluminum Bolt on Balcony or comparable product by one of the following:

    a. Excell Railing Systems Ltd.
    b. Skyline Group.
    c. <**Insert manufacturer's name**>.

2. Fabrication: [**Preassembled**] [**Knock-down, with precut extrusions and predrilled holes**].
3. Deck: Maintenance-free extruded solid waterproof aluminum planks.
4. Railing Posts: 2-3/8-inch- (60-mm-) square, heavy-duty aluminum posts.
5. Railing Top Rail: [**Elliptical, TR999**] [**Flat, TR200**] [**TR400 (wood top rail application)**].
6. Railing Infill: [**Glass**] [**Pickets**] [**Stainless steel cables**] [**Perforated aluminum**] [**Woven wire mesh**].
7. Finish: [**Baked-on enamel**] [**Anodized**] [**Powder coat**].

    a. Color: [**Black**] [**Brown**] [**White**] [**As indicated by manufacturer's designations**] [**Match Architect's sample**] [**As selected by Architect from full range of industry colors**[**and color densities**]].

8. Attachment Brackets: Provide [**sub-fascia**] [**side-mount**] mounting brackets.
9. Support Components: Provide sag rods with attachment plates.

2.4 MATERIALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

B. Brackets, Flanges, and Anchors: Same metal and finish as supported rails unless otherwise indicated.

1. Provide extruded-aluminum brackets with interlocking pieces that conceal anchorage. Locate set screws on bottom of bracket.

2.5 ALUMINUM

A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with strength and durability properties for each aluminum form required not less than that of alloy and temper designated below.

B. Extruded Bars and Shapes[**, Including Extruded Tubing**]: ASTM B221 (ASTM B221M), Alloy 6063-T5/T52.

C. Extruded Structural [**Pipe**] [**and**] [**Round Tubing**]: ASTM B429/B429M, Alloy 6063-T6.

1. Provide Standard Weight (Schedule 40) pipe unless otherwise indicated.

D. Drawn Seamless Tubing: ASTM B210 (ASTM B210M), Alloy 6063-T832.

E. Plate and Sheet: ASTM B209 (ASTM B209M), [**Alloy 5005-H32**] [**Alloy 6061-T6**].

F. Die and Hand Forgings: ASTM B247 (ASTM B247M), Alloy 6061-T6.

G. Castings: ASTM B26/B 26M, Alloy A356.0-T6.

2.6 STAINLESS STEEL

A. Wire Rope and Fittings:

1. Basis-of-Design Product: Subject to compliance with requirements, provide American Structures & Design, Inc.; Ultra-Tec Cable or comparable product by one of the following:

a. Feeney Wire Rope & Rigging.
b. Hansen Architectural Systems.
c. <**Insert manufacturer's name**>.

2. Wire Rope: 1-by-19 left hand lay wire rope made from wire complying with ASTM A492, Type 316.
3. Wire-Rope Fittings: Connectors of types indicated, fabricated from stainless steel, and with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.

2.7 FABRICATION

A. Shop Assembly of Preassembled Deck Frames: Assembled deck frames includes front fascia, joists, and subfascia with deck boards not included.

2.8 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

2.9 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Mechanical Finish: AA-M3x; sand top rails, handrails, and intermediate rails in one direction only, parallel to length of railing, with 120- and 320-grit abrasive. After installation, polish railings with No. 0 steel wool immersed in paste wax, then rub to a luster with a soft, dry cloth.

C. Clear Anodic Finish: AAMA 611, [**AA-M12C22A41, Class I, 0.018 mm**] [**AA-M12C22A31, Class II, 0.010 mm**] or thicker.

D. Color Anodic Finish: AAMA 611, [**AA-M12C22A42/A44, Class I, 0.018 mm**] [**AA-M12C22A32/A34, Class II, 0.010 mm**] or thicker.

1. Color: [**Champagne**] [**Light bronze**] [**Medium bronze**] [**Dark bronze**] [**Black**] <**Insert color**>.
2. Color: [**Match Architect's sample**] [**As selected by Architect from full range of industry colors and color densities**].

E. Baked-Enamel Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

1. Color and Gloss: [**Black**] [**Brown**] [**White**] [**As indicated by manufacturer's designations**] [**Match Architect's sample**] [**As selected by Architect from manufacturer's full range**] <**Insert color and gloss**>.

F. Powder Coat Finish: AAMA 2605. Comply with coating manufacturer's written instructions for cleaning.

1. Color and Gloss: [**Black**] [**Brown**] [**White**] [**As indicated by manufacturer's designations**] [**Match Architect's sample**] [**As selected by Architect from manufacturer's full range**] <**Insert color and gloss**>.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine attachment locations for suitable conditions where balconies will be installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's standards and engineering for installation of balconies.

3.3 CLEANING

A. Clean aluminum and stainless steel by washing thoroughly with clean water and soap, rinsing with clean water, and wiping dry.

B. Clean and polish [**glass**] [**and**] [**glass vinyl glazing**] as recommended in writing by manufacturer. Wash both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion.

3.4 PROTECTION

A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work.

END OF SECTION 055913