

## SECTION 055913 - METAL BALCONIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Prefabricated aluminum balconies and railings.
- B. Related Requirements:
  - 1. Section 055100 - Metal Stairs and Railings for metal stairs and railings.
  - 2. Section 057300 - Decorative Metal Railings for railings at other locations.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Division 01, for balconies.
- 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 (0.89 kg)>.
- 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.

#### 1.3 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.

#### 1.4 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.

#### 1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference a minimum of two weeks prior to start of installation.

#### 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
  - 1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
- C. Shop Drawings: Include plans, elevations, sections, and attachment details. Site specific submittal packages will be reviewed, signed, and stamped by Architect, Contractor and Engineer-of-Record.
- D. Samples for Verification: For each type of exposed finish required.
- E. 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.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Welding certificates.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E894 and ASTM E935.
- D. Preconstruction test reports.

#### 1.8 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

## 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 PREFABRICATED ALUMINUM BALCONIES

- A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide prefabricated aluminum balconies by one of the following:
1. American Structures and Design. (Basis-of-design)
- B. Materials:
1. Fabrication: [Preassembled] [Knock-down, with precut extrusions and predrilled holes].
  2. Deck: Maintenance-free extruded solid waterproof aluminum planks.
  3. Railing Posts: 2-3/8-inch- (60-mm-) square, heavy-duty aluminum posts.
  4. Railing Top Rail: [Elliptical, TR999] [Flat, TR200] [TR400 (wood top rail application)].
  5. Railing Infill: [Glass] [Pickets] [Stainless steel cables] [Perforated Aluminum] [Woven Wire Mesh].
  6. Attachment Brackets: Provide [sub-facia] [side-mount] mounting brackets.
  7. Support Components: Provide sag rods with attachment plates.
- 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].
- E. Baked-Enamel Finish: AAMA 2604 or 2605 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. Finish Color: [As selected from manufacturer's standard colors.] [Custom.]
- F. Powder Coat Finish: AAMA 2604 performance.
1. Chemistry: Polyester TGIC free.
  2. Standard Durability: 3 to 5 years Florida.
  3. Extended Guarantees: 20 years film integrity and 15 years color.
  4. Finish Sheen: Matt.
  5. Finish Color: [As selected from manufacturer's standard colors.] [Custom.]
- G. Powder Coat Finish: AAMA 2605 performance.
1. Chemistry: FEVE.
  2. Standard Durability: 10 years Florida.
  3. Extended Guarantees: 30 years film integrity and 20 years color.

4. Finish Sheen: Matt.
5. Finish Color: [As selected from manufacturer's standard colors.] [Custom.]

## 2.2 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.

## 2.3 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 6061-T6.
- C. Yield strength for Alloy 6063-T6 is 25 ksi (172 MPa).
- D. Extruded Structural Pipe and Round Tubing: ASTM B429/B429M, Alloy 6061-T6.
  1. Provide Standard Weight (Schedule 40) pipe unless otherwise indicated.
- E. Drawn Seamless Tubing: ASTM B210 (ASTM B210M), Alloy 6063-T832.
- F. Plate and Sheet: ASTM B209 (ASTM B209M), [Alloy 5005-H32] [Alloy 6061-T6].
- G. Die and Hand Forgings: ASTM B247 (ASTM B247M), Alloy 6061-T6.
- H. Castings: ASTM B26/B26M, Alloy A356.0-T6.

## 2.4 FABRICATION

- A. Shop Assembly of Preassembled Deck Frames: Assembled deck frames includes front fascia, joists, and subfascia with deck boards cut to size but not assembled to frame.

## 2.5 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 from scratching and paint damage in transit.
- 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 where applicable.

### 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. Install balconies in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.

#### 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 materials 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 from damage during construction period with temporary protective coverings approved by 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