

SECTION 10245

ARCHITECTURAL SCREENS AND GRILLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Security grilles (screens).
- B. Related Sections include the following:
 - 1. Division 5 Section "Metal Fabrications" for support framing for security grilles (screens).
 - 2. Division 10 Section "Exterior Sun Control Devices" for sun shading screens.

1.03 PERFORMANCE REQUIREMENTS

- A. General: In engineering 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.
- B. Thermal Movements: Provide architectural grilles that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, undue strain on fasteners and anchors, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01300.
- B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, finishes, and installation instructions.
- C. Shop Drawings: Show layout, spacing, and sizes of architectural grilles, and accessories. Include plans, elevations, details of components, and attachments to other Work.

1.05 QUALITY ASSURANCE

- A. Source Limitations for Grilles: Obtain architectural grilles through one source from a single manufacturer.
- B. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.2, "Structural Welding Code--Aluminum."

- C. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

1.06 PROJECT CONDITIONS

- A. Field Measurements: Verify openings for architectural grilles by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 1. Products: Subject to compliance with requirements, provide one of the products specified.

2.02 MATERIALS, GENERAL

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- B. Aluminum Extrusions: **ASTM B 221 (ASTM B 221M)**, alloy 6063-T5 or T-52.
- C. Aluminum Sheet: **ASTM B 209 (ASTM B 209M)**, alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- D. Aluminum Plate and Sheet: **ASTM B 209 (ASTM B 209M)**, Alloy 6061-T6.
- E. Aluminum Die and Hand Forgings: **ASTM B 247 (ASTM B 247M)**, Alloy 6061-T6.
- F. Aluminum Castings: **ASTM B 26/B 26M**, alloy 319 or alloy A356.0-T6.
- G. Fasteners: Provide Type 304 stainless steel fasteners, unless otherwise indicated. Select fasteners for type, grade, and class required.
 - 1. Use types and sizes to suit unit installation conditions.
 - 2. Use hex-head or Phillips pan-head screws for exposed fasteners, unless otherwise indicated.
- H. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, made from stainless-steel components, with capability to sustain, without failure, a load equal to 4 times the loads imposed, for concrete, or 6 times the load imposed, for masonry, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Material for Anchors in Exterior Locations: Alloy Group **1 (A1)** stainless steel bolts complying with **ASTM F 593 (ASTM F 738M)** and nuts complying with **ASTM F 594 (ASTM F 836M)**.
- I. Chemical Anchors: Two-part epoxy systems with impacted bolt, rod or anchor as follows:
 - 1. Concrete Anchor: Epoxy capsule system similar to Hilti HVA Adhesive Anchor System, Ramset Chemset anchor system, or approved equal.
 - 2. Masonry Anchor: Epoxy injection system similar to Hilti HIT C-100 System.
- J. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.03 SECURITY GRILL FABRICATION

- A. Assemble architectural grilles (screens) in factory to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

- B. Maintain indicated cell size and depth of architectural grilles to produce uniform appearance.
- C. Fabricate frames to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, and adjoining material tolerances.
- D. Include supports, anchorages, and accessories required for complete assembly.
- E. Join frame members to each other and to architectural grille cells with fillet welds concealed from view, unless otherwise indicated or size of architectural grille assembly makes bolted connections between frame members necessary.

2.04 ARCHITECTURAL SECURITY GRILLES

- A. Product: Sentry Grille; Construction Specialties, Inc.
- B. Security Grille Depth: 2 inches.
- C. Vertical Member Size and Spacing: 2 inches by 0.25 inch extruded aluminum bars spaced at 12 inches on center.
- D. Horizontal Member Size and Spacing: 7/8 inch extruded aluminum tubes spaced at 3 inches on center.

2.05 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish architectural grilles after assembly.
- D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. 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.

2.06 ALUMINUM FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- C. Class II, Clear Anodic Finish (Security Screens): AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION OF ARCHITECTURAL GRILLES (SCREENS)

- A. Install architectural grilles in accordance with manufacturer's instructions.
- B. Locate and place units level, plumb, and at indicated alignment with adjacent work.
- C. Use concealed anchorages where possible.
- D. Form closely fitted joints with exposed connections accurately located and secured.
- E. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.
- F. Protect nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.

3.03 CLEANING

- A. Clean exposed surfaces of architectural grilles that are not protected by temporary covering, to remove fingerprints and soil during construction period. Use cleaning methods recommended by grill manufacturer. Do not let soil accumulate until final cleaning.

3.04 PROTECTION

- A. Restore architectural grilles damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.

END OF SECTION