

SECTION 10 82 33

ALUMINUM GRILLES

This section is based on the products of Intertec, a Div. of Doralco, which is located at:

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, Division 01 - General Requirements, and other applicable specification sections in the Project Manual apply to the work specified in this Section.

1.2 SUMMARY

- A. Scope: Provide design and engineering, labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, erection, and installation for aluminum grilles as required for the complete performance of the work, and as shown on the Drawings and as herein specified.
- B. Section Includes: The work specified in this Section includes, but shall not be limited to, aluminum grilles as indicated on the Drawings and as specified in this Section. Aluminum grilles are hereby defined to include aluminum framed panels which are structurally capable of spanning between supports spaced as indicated.
 - 1. Types of grilles required include, but shall not be limited to, aluminum straight line grilles framed in panels for stand-off mounting on exterior walls of building and as parapet guards and other exterior covering as shown on the Drawings.
 - 2. Provide frames, supports, girts, fasteners, metal flashings, fascias, and metal trim associated with metal grilles to provide a complete system.

1.3 REFERENCES

- A. General: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.

Delete standards below which are not referenced in Parts 1, 2, or 3 of this specification section.

- B. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 2605, "Voluntary Specification, Performance Requirements, and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels."
- C. American Welding Society (AWS):
 - 1. AWS D1.2, "Structural Welding Code - Aluminum" (copyrighted by AWS, ANSI approved).
- D. ASTM (ASTM):
 - 1. ASTM B 209/B 209M, "Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate."

2. ASTM B 221/B 221M, "Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes."
 3. ASTM D 1187, "Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal."
- E. National Association of Architectural Metal Manufacturers (NAAMM):
1. NAAMM MFM, "Metal Finishes Manual."
- F. SSPC: The Society for Protective Coatings (SSPC):
1. SSPC Paint 12, "Paint Specification No. 12 Cold-Applied Asphalt Mastic (Extra Thick Film)."
- G. South Coast Air Quality Management District (SCAQMD):
1. SCAQMD Rule #1168, "Adhesive and Sealant Applications," including most recent amendments.
- 1.4 SUBMITTALS
- A. General: See Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit product data showing material proposed. Submit sufficient information to determine compliance with the Drawings and Specifications. Product data shall include, but shall not be limited to, manufacturer's product specifications, standard details, installation instructions, and general recommendations, as applicable to materials and finishes for each component and for total system of grille panels.
- C. Shop Drawings: Submit shop drawings for each product and accessory required. Include information not fully detailed in manufacturer's standard product data, including, but not limited to, dimensioned layouts of grilles on roofs, and large scale details of framing, edge conditions, joints, corners, custom profiles, supports, anchorages, joints, trim, flashings, closures, and special details. Distinguish between factory-assembled and field-assembled work.
- D. Samples:
1. Submit samples for initial color selection. Submit samples of each specified finish. Submit samples in form of manufacturer's color charts showing full range of colors and finishes available. Where finishes involve normal color variations, include samples showing the full, range of variations expected.

Delete above if colors preselected and specified or scheduled. Retain below with or without above.

2. Submit samples for verification purposes. Submit 24 inch (610 mm) by 24 inch (610 mm) minimum size sample of selected color coating. Additional samples may be required to show design, fabrication techniques, and workmanship.
- E. Qualification Data: Submit qualification data for firms and persons specified in Quality Assurance Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names of architects and owners, and other information specified.

Retain below for project requiring LEED certification.

- F. LEED Submittals: Submittals that are required to comply with requirements for LEED certification include, but shall not be limited to, the following:
1. Recycled Content Materials: Provide product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. Include statement indicating costs for each product having recycled content.

2. Regional Materials: Provide product data for regional materials indicating location and distance from the Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Distance shall be within 500 miles (805 Km) of the Project Site. Include statement indicating cost for each regional material and, if applicable, the fraction by weight that is considered regional.

3. Low-Emitting Materials: Submit certification by the manufacturer confirming that products (i.e., adhesives, sealants, paints, coatings, etc.) meet or exceed the volatile organic compound (VOC) limits set by specific agencies or other requirements as outlined in the LEED Green Building Rating System. VOC limits shall be clearly stated in the submittal.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer Qualifications: Manufacturer shall be a firm engaged in the manufacture of aluminum grilles of types and sizes required, and whose products have been in satisfactory use in similar service for a minimum of five years.
 - a. Fabrication personnel shall be experienced and specialize in welding, fabricating, and handling architectural aluminum products. Plant facility shall be similarly suitable for this type of fabrication and contain no ferrous metals that may adversely affect the aluminum raw materials or finished product.
2. Installer Qualifications: Installer shall be a firm that shall have a minimum of five years of successful installation experience with projects utilizing aluminum grilles similar in type and scope to that required for this Project and shall be approved by the manufacturer.
3. Welder Qualifications: Qualify welding processes and welding operators in accordance with AWS standard qualification procedures. Operators shall carry proof of qualification on their persons.

- B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction. Obtain necessary approvals from such authorities.

- C. Welding Standards: Comply with applicable provisions of AWS D1.2.

- D. Pre-Installation Conference: Conduct pre-installation conference in accordance with Section 01 31 19 - Project Meetings. Prior to commencing the installation, meet at the Project site to review the material selections, installation procedures, and coordination with other trades. Pre-installation conference shall include, but shall not be limited to, the Contractor, the Installer, and any trade that requires coordination with the work. Date and time of the pre-installation conference shall be acceptable to the Owner and the Architect.

- E. Single Source Responsibility: Obtain aluminum grilles, framing and related accessories complete, from a single source with resources to produce products of consistent quality in appearance and physical properties without delaying the work. Provide accessory materials as recommended by manufacturer of primary materials.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project site in supplier's or manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and lot number, if any.

- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Take field measurements prior to fabrication of the work and preparation of shop drawings, to ensure proper fitting of the work. Show recorded measurements on final shop drawings. Notify the Owner and the Architect, in writing, of any dimensions found which are not within specified dimensions and tolerances in the Contract Documents, prior to proceeding with the fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the work.
 - 1. Where possible, prior to fabrication of prefabricated panels, take field measurements of structure or substrates to receive system. Allow for trimming units where final dimensions cannot be established prior to fabrication.
 - 2. Designs of grille panels are dimensioned to avoid necessity of cutting grilles at points other than whole grid modules. Notify the Architect of any need to trim grilles off-module and do not proceed with panels in question until adjustments are made.

1.8 WARRANTY

- A. General: See Section 01 77 00 - Closeout Procedures.
- B. Special Warranty: The Contractor shall warrant the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for a period of five years. This special warranty shall extend the one year period of limitations contained in the General Conditions. The special warranty shall be countersigned by the manufacturer and the Installer.
- C. Special PVDF Finish Warranty: Submit a written warranty, signed by manufacturer, covering failure of the factory-applied exterior finish within the specified warranty period and agreeing to repair finish or replace work that shows evidence of finish deterioration. Deterioration of finish includes, but shall not be limited to, color fade, chalking, cracking, peeling, and loss of film integrity.

Ten year warranty for PVDF finish below is standard from the manufacturer, 20 year warranty is available at an extra charge.

- 1. Warranty Period: Warranty period shall be 10 years from date of Substantial Completion.

- D. Additional Owner Rights: The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Products specified are those as manufactured by Intertec, a Div. of Doralco; 5919 W. 118th Street, Alsip, IL 60803; Phone: 888-443-6725; Fax: 708-388-9392; Web Site: www.doralco.com. Items specified are to establish a standard of quality for design, function, materials, and appearance. Equivalent products by other manufacturers are acceptable. The Architect will be the sole judge of the basis of what is equivalent.
- B. Substitutions: If the Contractor desires to make substitutions of materials, comply with requirements specified in Section 01 60 00 - Product Requirements.

2.2 MATERIALS

Retain below for project requiring LEED certification.

A. LEED Requirements:

1. Recycled Content Materials: Provide building materials with recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum of [10 percent] [20 percent] of the cost of materials used for the Project. See LEED Green Building Rating System.

Above applies to Credit MR 4. Select applicable percentages (10 percent applies to Credit MR 4.1, 20 percent applies to Credit MR 4.1 and MR 4.2). Below applies to Credit MR 5.1 and MR 5.2. Retain first indicated option below for Credit MR 5.1, retain both options for Credit MR5.2.

2. Regional Materials: Provide a minimum of [10 percent (based on cost)] [and an additional 10 percent beyond Credit MR 5.1 (total of 20 percent, based on cost)], of building materials that are regionally extracted, processed, and manufactured.

Below applies to Credit EQ 4.2.

3. Low-Emitting Materials: Use adhesives, sealants, paints, coatings, etc., that comply with the specified limits for VOC content when calculated according to SCAQMD Rule #1168. See LEED Green Building Rating System for VOC content limits.

B. Aluminum:

1. Aluminum Extrusions: ASTM B 221/B 221M, Alloy 6063-T5, 0.125 inch (3 mm) minimum thickness.
2. Aluminum Sheet: ASTM B 209/B 209M, Alloy 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.

C. Fasteners: Same basic metal and alloy as fastened metal or 300 Series stainless steel unless otherwise indicated. Do not use metals that are incompatible with joined materials.

1. Use types and sizes to suit unit installation conditions.
2. Use Phillips flat-head screws for exposed fasteners, unless otherwise indicated.

D. Anchors and Inserts: Type, size, and material required for loading and installation indicated. Use non-ferrous metal or hot dip galvanized anchors and inserts for exterior installations and elsewhere as needed for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187 and SSPC Paint 12. Use to separate dissimilar, corrosive metals, or metal from concrete.

2.3 ALUMINUM GRILLES

A. General: Provide assemblies of architectural aluminum grilles assembled into frames of extruded aluminum head, jamb, sill, and mullion members. Provide units of size and configuration shown. Include extruded aluminum structural supports and anchorages as required. Factory assemble units complete, ready for field installation.

1. Bars shall be [] inches ([] mm) thick and [] inches ([] mm) deep, as shown on the Drawings. Vertical bars shall be [] inches ([] mm) on center and horizontal bars shall be [] inches ([] mm) on center, with [] degrees of tilt. Bars shall be joined by means of a mechanical lock at each intersection and welded in a neat manner where recommended by the manufacturer, for adequate structural performance.

Insert applicable dimensions and degrees of tilt above. Insert applicable model below.

- B. Basis of Design: "Straight Line Grilles Model #SL[____]," as manufactured by Intertec, a Div. of Doralco.

2.4 FABRICATION

- A. Coordinate field measurements and shop drawings with fabrication and shop assembly to minimize field adjustments, splicing, mechanical joints, and field assembly of units. Preassemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Provide grilles and accessories of design, materials, sizes, depth, arrangement, and metal thickness indicated, or if not indicated, as required for optimum performance with respect to strength, durability, and uniform appearance.
- C. Fabrication shall be completed prior to application of finish, leaving no edges, screw holes, or other portions of the grille without finish.
- D. Fabricate frames, including, but not limited to, integral sills, to suit adjacent construction with tolerances for installation, including application of sealants in joints between grilles and adjoining work where required.
- E. Include supports, anchorages, and accessories required to achieve a complete assembly.
- F. Provide grille framing of type and at spacings indicated but not further apart than recommended by manufacturer.
- G. Join frame members to one another by welding, except where indicated otherwise or where field-bolted connections between frame members are made necessary by size of panels. Maintain equal blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- H. Except as indicated as work of another specification section, provide components required for a complete system, including, but not limited to, trim, copings, fascias, stops, corner units, clips, etc.

2.5 FINISHES

- A. Comply with NAAMM MFM for architectural metal products for recommendations for applying and designating finishes. Finish aluminum grilles after assembly if welded.
 - 1. Aluminum Finishes: Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.
 - a. High Performance Organic Coating: AA-C12-C42-R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: chemical conversion coating, acid chromate-fluoride-phosphate pretreatment; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.
 - 1) Standard Two-Coat Polyvinylidene Fluoride (PVDF) Finish Coating: Manufacturer's standard thermocured system, complying with AAMA 2605, composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent PVDF resin by weight, as produced by Arkema, Inc. ("Kynar 500") or by Solvay Solexis, Inc. ("Hylar 5000"). Provide minimum 1.2 mil (0.030 mm) total dry film thickness. Provide color to match the Architect's sample, or, if no sample, as selected by the Architect from manufacturer's standard choices for color and gloss.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
 - 1. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to the Project Site.

3.3 INSTALLATION

- A. Install aluminum grilles in accordance with reviewed product data, final shop drawings, as indicated on the Drawings, and manufacturer's specifications and recommendations.
- B. Do not install component parts which are observed to be defective in any way, including, but not limited to, warped, bowed, dented, damaged edges, and abraded and broken members.
- C. Do not cut or trim component parts during erection, in a manner which would damage the finish, decrease the strength, or result in a visual imperfection.
- D. Install component parts level, plumb, true-to-line and with uniform joints and reveals. Secure to structure with non-staining and non-corrosive shims, anchors, fasteners, spacers, and fillers. Use erection equipment which shall not mar or stain finished surfaces, and shall not damage the component parts.
- E. Anchor component parts securely in place as shown, by bolting or other permanent mechanical attachment system, which shall comply with performance requirements.
- F. Protect galvanized and non-ferrous metal surfaces from corrosion or galvanic action by applying a heavy coating or bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.

3.4 CLEANING AND ADJUSTING

- A. Cleaning: Remove temporary protective coverings and strippable films (if any) as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.
- B. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.

3.5 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to the Installer, that shall ensure that the aluminum grilles shall be without damage at time of Substantial Completion.

END OF SECTION