



SECTION 05 58 00

FORMED METAL FABRICATIONS

This section is based on the products of COMPOSITEcore, a Div. Doralco Architectural Metals, which is located at:
5919 W. 118th Street
Alsip, IL 60803
Phone: 888-443-6725
Fax: 708-388-9392
Web Site: www.doralco.com

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 formed metal fabrications 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, formed metal fabrications as indicated on the Drawings and as specified in this Section. Formed metal fabrications are hereby defined to include the following:

Edit list below to suit the Project.

- 1. Aluminum column covers.
- 2. Stainless steel column covers.
- 3. Aluminum composite material (ACM) column covers.
- 4. Beam wraps.

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 611, "Voluntary Specifications for Anodized Architectural Aluminum (Revised)."

2. 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).
 2. AWS D1.6, "Structural Welding Code - Stainless Steel" (copyrighted by AWS, ANSI approved).
- D. ASTM (ASTM):
1. ASTM A 276, "Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes."
 2. ASTM A 666, "Standard Specification for Austenitic Stainless Steel, Sheet, Strip, Plate, and Flat Bar."
 3. ASTM B 209/B 209M, "Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate."
 4. ASTM B 221/B 221M, "Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes."
 5. ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials."
 6. ASTM E 330, "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."
- E. National Association of Architectural Metal Manufacturers (NAAMM):
1. NAAMM MFM, "Metal Finishes Manual."
- F. South Coast Air Quality Management District (SCAQMD):
1. SCAQMD Rule #1168, "Adhesive and Sealant Applications," including most recent amendments.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Metal-faced formed metal assemblies shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Structural Performance: Provide metal-faced formed metal assemblies capable of withstanding the effects of the following loads and stresses within limits and under conditions indicated, based on testing according to ASTM E 330:
1. Wind Loads: Determine loads based on the following minimum design wind pressures:
 - a. Uniform pressure of 30 psf (1436 Pa), acting inward or outward.
 2. Deflection Limits: Metal-faced formed metal assemblies shall withstand wind loads with horizontal deflections no greater than 1/175 of the span at the perimeter and 1/60 of the span anywhere in the panel.
- C. Thermal Movements: Allow for thermal movement resulting from the following maximum change (range) in ambient and surface temperatures in engineering, fabricating, and installing exterior metal fabrications to prevent buckling, opening of joints, overstressing of components and connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.
1. Temperature Change (Range): 120 °F or 67 °C ambient, 180 °F or 100 °C material surfaces.
- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.5 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.

- 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, 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. For verification samples of each profile and pattern of fabricated metal and each type of metal finish required, prepared on metal of same thickness and alloy indicated for final unit of work. Where finishes involve normal color and texture variations, include sample sets composed of two or more units showing the full range of variations expected. Submit 6 inch (152 mm) by 6 inch (152 mm) minimum size sample of selected color coating. Additional samples may be required to show design, fabrication techniques, and workmanship.
- E. Quality Control Submittals:
 - 1. Design Data: For installed products indicated to comply with certain design loadings, include structural analysis data signed and sealed by the professional engineer who was responsible for their preparation. Only the loading on the structure at the connections will be reviewed.
 - 2. 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.

Above applies to Credit MR 4. Below applies to Credit MR 5.1 and MR 5.2.

- 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.

Below applies to Credit EQ 4.2.

- 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.

1.6 QUALITY ASSURANCE

A. Qualifications:

1. **Manufacturer Qualifications:** Manufacturer shall be a firm engaged in the manufacture of formed metal fabrications of types and sizes required, and whose products have been in satisfactory use in similar service for a minimum of five years.
2. **Installer Qualifications:** Installer shall be a firm that shall have a minimum of five years of successful installation experience with projects utilizing formed metal fabrications 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.

Edit below to suit the Project. Retain AWS D1.2 for aluminum and AWS D1.6 for stainless steel.

- C. **Welding Standards:** Comply with applicable provisions of AWS D1.2 and AWS D1.6.

- 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 formed metal fabrications, 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.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project site in supplier's or manufacturer's original wooden crates 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.

1.8 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.

1.9 WARRANTY

- A. **General:** See Section 01 77 00 - Closeout Procedures.

Two year warranty below is standard from the manufacturer; warranty can be upgraded to five years at an extra charge.

- 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 two 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 Anodized 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, early deterioration, aging, or discoloration.
 - 1. Warranty Period: Warranty period shall be five years from date of Substantial Completion.

Retain above if anodized finish is applicable to the Project. Retain below if PVDF finish is applicable to the Project. If either case five year warranty is standard from the manufacturer, warranty can be upgraded to 10 years or 20 years at an extra charge.

- D. 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.
 - 1. Warranty Period: Warranty period shall be five years from date of Substantial Completion.
- E. 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 COMPOSITEcore, a Div. Doralco Architectural Metals; 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 AND ACCESSORIES

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.

Select applicable metal material below, as applicable to the Project.

- B. Aluminum: 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 the alloy and temper designated below for each aluminum form required.
 1. Aluminum Extrusions: ASTM B 221/B 221M, Alloy 6063-T5, 0.125 inch (3.2 mm) minimum thickness.
 2. Aluminum Sheet: ASTM B 209/B 209M, Alloy 5005.
- C. Stainless Steel: Provide grade, type, and finish as designated below for each form required:
 1. Sheet, Strip, Plate, and Flat Bar: ASTM A 666, Type 304.
 2. Bars and Shapes: ASTM A 276, Type 304.

Retain two product above or two products below. Above two products are Type 304, which is typical. Two products below are Type 316 which give better corrosion resistance in coastal environments.

3. Sheet, Strip, Plate, and Flat Bar : ASTM A 666, Type 316.
 4. Bars and Shapes: ASTM A 276, Type 316.
- D. ACM Metal Panels: Provide factory-formed and factory-assembled, metal-faced ACM panels fabricated from two metal facings bonded, using no glues or adhesives, to solid, extruded thermoplastic core; formed into profile for installation method indicated.

Characteristics below are typical. Contact the manufacturer to determine other options (i.e., other metal face sheets, fire-resistant core, other available panel thicknesses, etc.).

1. Aluminum Face Sheets:
 - a. Thickness: 0.020 inch (0.51 mm).
 - b. Aluminum Alloy: 3000 Series or equivalent.
2. Polyethylene (PE) Core: Flame spread of 15 and a smoke developed rating of 120 with a center panel joint; flame spread of 0 and a smoke developed of 0 with no joint; tested in accordance with ASTM E 84, Class A building material rating.

Select above or below, or both, as applicable to the Project. If selecting both, be sure to schedule on the Drawings or specify herein where each product is to be provided.

3. Fire Resistant (FR) Core: Flame spread rating of 15 and a smoke developed rating of 30 with a center panel joint; flame spread of 0 and a smoke developed of 0 with no joint; tested in accordance with ASTM E 84, Class A building material rating

- E. Stiffeners: Panel stiffeners shall be structurally fastened or restrained at the ends and shall be secured to the rear face of the formed metal fabrication with silicone of sufficient size and strength to maintain panel flatness. Stiffener material and/or finish shall be compatible with the silicone.
- F. Fasteners: Provide self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads.
 - 1. Exposed Fasteners: Stainless steel, or as recommended by formed metal fabrication manufacturer.
 - 2. Concealed Fasteners: Stal-guard, Climaseal-coated, stainless steel, or as recommended by system manufacturer
- G. System Brake Metal: Provide 0.063 inch (1.60 mm) minimum thickness aluminum sheet; where exposed, painted to match adjacent metal framing or formed metal fabrication.
- H. Sealants Within Formed Metal Fabrication: Comply with formed metal fabrication manufacturer's requirements.
- I. Anchors and Inserts: Provide 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.

2.3 COLUMN COVER SYSTEMS

- A. Form column covers from sheet metal of type and thickness indicated. Incorporate reveals, trim, concealed anchors, etc., for attachment to columns or adjacent construction as indicated. Provide units of size and configuration shown. Column covers shall be formed in shape shown on the Drawings, with reveals, joints, etc., as shown on the Drawings. Include structural supports and anchorages as required. Factory assemble units complete, ready for field installation.

Select applicable metal system, material, and finish below, as applicable to the Project.

- 1. Aluminum Column Cover System:
 - a. System: "Series 3000," 1/2 inch (13 mm) wet joint.
 - b. System: "Series 3500," 3/4 inch (19 mm) wet joint.
 - c. System: "Series 4000," 1/2 inch (13 mm) metal filler channel joint (flush or recessed).
 - d. System: "Series 4500," 3/4 inch (19 mm) metal filler channel joint (flush or recessed).
 - e. System: "Series 5000," key slot hairline joint.
 - f. Horizontal Joint: Floor, [wet joint] [metal filler] [open] [flush] [fixed insert base reveal].
 - g. Horizontal Joint: Intermediate, [wet joint] [metal filler] [butt joint].
 - h. Horizontal Joint: Ceiling, [wet joint] [metal filler] [open] [flush] [through ceiling].
 - i. Material: Aluminum sheet, Alloy 3003, 0.125 inch (3.2 mm) thick.
 - j. Material: Aluminum sheet, Alloy 5005, 0.125 inch (3.2 mm) thick.
 - k. Aluminum Finish, Alloy 3003: Factory baked-on PVDF finish, applied per AAMA standards, free of scratches and blemishes.
 - 1) 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.
 - l. Aluminum Finish, Alloy 5005: Anodized finish, applied per AAMA standards, free of scratches and blemishes.
 - 1) 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.
 - m. Fabrication: Column covers shall be fabricated on press breaks and roll-forming equipment as shapes require. Maximum column cover piece length shall be 10 feet (3048 mm). Column covers shall be available in a 15 inch (381 mm) minimum diameter. Provide solid aluminum materials to allow for forming techniques on curves, 3D profiles, and difficult transitions without unsightly splices or joints.

2. Stainless Steel Column Cover Systems:
 - a. System: "Series 3000," 1/2 inch (13 mm) wet joint.
 - b. System: "Series 3500," 3/4 inch (19 mm) wet joint.
 - c. System: "Series 4000," 1/2 inch (13 mm) metal filler channel joint (flush or recessed).
 - d. System: "Series 4500," 3/4 inch (19 mm) metal filler channel joint (flush or recessed).
 - e. System: "Series 5000," key slot hairline joint.
 - f. Horizontal Joint: Floor, [wet joint] [metal filler] [open] [flush] [fixed insert base reveal].
 - g. Horizontal Joint: Intermediate, [wet joint] [metal filler] [butt joint].
 - h. Horizontal Joint: Ceiling, [wet joint] [metal filler] [open] [flush] [through ceiling].
 - i. Material: Stainless steel sheet, Type 304, 16 gage (1.519 mm) thick.
 - j. Material: Specialty metals as scheduled. Refer to the Drawings.
 - k. Stainless Steel Finish: Factory-applied mirror finish.
 - l. Stainless Steel Finish: Factory-applied brushed finish.
 - m. Fabrication: Column covers shall be fabricated on press breaks and roll-forming equipment as shapes require. Maximum column cover piece length shall be 10 feet (3048 mm). Column covers shall be available in a 19 inch (483 mm) minimum diameter. Provide solid stainless steel materials to allow for forming techniques on curves, 3D profiles, and difficult transitions without unsightly splices or joints.
3. ACM Column Cover Systems:
 - a. System: "Series 3000," 1/2 inch (13 mm) wet joint.
 - b. System: "Series 3500," 3/4 inch (19 mm) wet joint.
 - c. System: "Series 4000," 1/2 inch (13 mm) metal filler channel joint (flush or recessed).
 - d. System: "Series 4500," 3/4 inch (19 mm) metal filler channel joint (flush or recessed).
 - e. Horizontal Joint: Floor, [wet joint] [metal filler] [open] [flush] [fixed insert base reveal].
 - f. Horizontal Joint: Intermediate, [wet joint] [metal filler] [butt joint].
 - g. Horizontal Joint: Ceiling, [wet joint] [metal filler] [open] [flush] [through ceiling].
 - h. Material: ACM panels; "Alpolic" as manufactured by Mitsubishi Plastics Composites America, Inc. or "Reynobond" as manufactured by Alcoa, Inc.
 - 1) Core: Standard core.
 - 2) Core: Fire-rated core.
 - i. Material Thickness: 4.0 mm (0.157 inch).
 - j. Material Thickness: 6.0 mm (0.236 inch).
 - k. Finish: Standard two-coat PVDF finish coating, applied per AAMA standards, free of scratches and blemishes.
 - 1) Provide color to match the Architect's sample, or, if no sample, as selected by the Architect from manufacturer's standard choices for color.
 - l. Fabrication: Fabricate on computer-controlled routing machinery and roll-forming equipment as shapes require. Maximum column cover piece length shall be 10 feet (3048 mm). Column covers shall be available in a 13 inch (330 mm) minimum diameter.
- B. Each course shall be fabricated in two or more vertical sections (typically halves) with joints as indicated on the Drawings but not greater than 3/4 inch (19 mm). Fold back ends of sheet metal to form a 1 inch (25 mm) wide return leg on the concealed side.
- C. Bump forming of column cover will not be permitted unless prior written acceptance of the Architect.
- D. Form bent metal corners to the smallest radius possible without causing grain separation or otherwise damaging the work.
- E. Provide straps, plates, and brackets as required for support and anchorage of fabricated items.
- F. Form column cover work to required shapes and sizes, with true curves, lines, and angles. Provide components in sizes and profiles indicated.
- G. Coordinate dimensions and attachment methods of formed metal fabrications with those of adjoining products and construction to produce integrated assemblies with closely fitting joints, and edges and surfaces aligned with one another in relationship indicated.

2.4 BEAM WRAPS

- A. Provide beam wrap to complement column covers, or as stand-alone treatment to enhance exposed beams, entranceways, etc., as shown on the Drawings. Beam wraps shall be custom-fabricated in material and finish indicated.
- B. Form beam wraps from metal of type and thickness indicated. Fabricate to fit tightly to adjoining construction. Fabricate with joint type and arrangement indicated.

2.5 FINISHES

- A. Comply with NAAMM MFM for architectural metal products for recommendations for applying and designating finishes. Finish work after assembly if welded.

Select applicable material and finish below.

- 1. Aluminum Finishes: Finish designations prefixed by AA comply with system established by the Aluminum Association for designating aluminum finishes.

Select finish below (clear anodized, color anodized, or two-coat polyvinylidene fluoride).

- a. Class I Clear Anodized Finish: AA-M12-C22-A41 (Mechanical Finish: as fabricated, non-specular; Chemical Finish: etched, medium matte; Anodic Coating: Class I Architectural, clear film thicker than 0.7 mil [0.018 mm]) complying with AAMA 611.
 - b. Class I Color Anodized Finish: AA-M21-C22-A42/A44 (Mechanical Finish: as fabricated, non-specular; Chemical Finish: etched, medium matte; Anodic Coating: Class I Architectural, film thicker than 0.7 mil [0.018 mm] with integral color or electrolytically deposited color) complying with AAMA 611. Provide color to match the Architect's sample, or, if no sample, as selected by the Architect from within full range of industry colors and color density range.
 - c. 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.
- 2. Stainless Steel Finishes: When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

Select finish below.

- a. Bright, Directional Polish: AISI No. 4 finish.
- b. Mirror-Like Reflective, Non-Directional Polish: AISI No. 8 finish.

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 formed metal fabrications 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, and 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. Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joint fillers as indicated. Install concealed gaskets, joint fillers, insulation, and flashings as the work progresses to make work weatherproof, soundproof, or lightproof as required.
- F. Anchor component parts securely in place as shown, by bolting or other permanent mechanical attachment system, which shall comply with performance requirements.
- G. Protect galvanized and non-ferrous metal surfaces from corrosion or galvanic action by applying a heavy coating 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 work is installed. Upon completion of installation, clean finished surfaces as recommended by manufacturer, and maintain in a clean condition during construction.
 - 1. Clean exposed surfaces of formed metal fabrications that are not protected by temporary covering to remove fingerprints and soil during construction period.
 - 2. Clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- B. Damaged Units: Replace work which has been damaged or has deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.
 - 1. Restore finishes damaged during installation and construction so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit; or provide new units as required.

3.5 PROTECTION

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

END OF SECTION