PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes:
1. Elevator push-button stations and elevator destination stations.
2. Stainless steel panels and trim.
3. Stainless steel framing at stone paneling.
4. Thresholds.

B. Related Sections:
1. Division 5 Section "Metal Fabrications" for non-decorative metal fabrications.
2. Division 5 Section "Decorative Metal Railings" for decorative metal railings.

1.3 QUALITY ASSURANCE

A. The work of this section shall be performed by a company which specializes in the type of decorative metal work required for this Project, with a minimum of 5 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
1. Work shall be performed in compliance with Owner's insurance underwriters' requirements and UL approvals and testing for materials, assemblies and procedures.

B. Manufacturer shall specialize in manufacturing the type of decorative metal specified in this section, with a minimum of 5 years of documented successful experience, and have the facilities capable of meeting all requirements of Contract Documents as a single-source responsibility and warranty.

C. Fabricator Qualifications: A firm experienced in producing decorative metal similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: Fabricator of products.

E. Organic-Coating Applicator Qualifications: A firm experienced in successfully applying organic coatings, of type indicated, to aluminum extrusions and employing competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

F. Anodic Finisher Qualifications: A firm experienced in successfully applying anodic finishes of type indicated and employing competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

G. Powder-Coating Applicator Qualifications: A firm experienced in successfully applying powder coatings of type indicated and employing competent control personnel to conduct continuing, effective quality-control program to ensure compliance with requirements.

H. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
3. AWS D1.3, "Structural Welding Code - Sheet Steel."
4. AWS D1.6, "Structural Welding Code - Stainless Steel."

I. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
1. Build mockups for the following types of decorative metal:
a. Elevator push-button stations and elevator destinations stations.
b. Stainless steel framing at stone paneling.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

J. Preinstallation Conference: Conduct conference at Project site.

K. Manufacturer's identification tags or marks are not acceptable on surfaces which will remain exposed to view after installation.
   1. Evidence of "patching" after removal of tags or marks is not acceptable.

1.4 ACTION SUBMITTALS

A. Submit the following according to Conditions of the Construction Contract and Division 1 Specification Sections.

B. Product Data: For each type of product indicated, including finishing materials.

C. LEED Submittals:
   1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.

D. Shop Drawings: Show fabrication and installation details for decorative metal.
   1. Include plans, elevations, component details, and attachments to other work.
   2. Indicate materials and profiles of each decorative metal member, fittings, joinery, finishes, fasteners, anchorages, and accessory items.

E. Samples for Verification: For each type of exposed finish required.
   1. Sections of linear shapes.
   2. Full-size Samples of castings and forgings.
   3. Samples of welded joints showing quality of workmanship.

F. Hazardous Materials Notification: In the event no product or material is available that does not contain asbestos, PCB or other hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

G. Asbestos and PCB Certification: After completion of installation, but prior to Substantial Completion, Contractor shall certify in writing that products and materials installed, and processes used, do not contain asbestos or polychlorinated biphenyls (PCB), using format in Article 3 of General Conditions.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified fabricator organic-coating applicator, anodic finisher, and powder-coating applicator.

B. Mill Certificates: Signed by manufacturers of stainless-steel certifying that products furnished comply with requirements.

C. Welding certificates.

D. Maintenance Data: Shall clearly indicate manufacturer's printed instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated use conditions and precautions against materials and methods which may be detrimental to finishes and performances.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with General Conditions and Division 1 Section "Product Requirements".

B. Store decorative metal in a well-ventilated area, away from uncured concrete and masonry, and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

C. Deliver and store cast-metal products in wooden crates surrounded by sufficient packing material to ensure that products will not be cracked or otherwise damaged.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with decorative metal by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

A. Coordinate installation of anchorages for decorative metal items. Furnish setting 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 such items to Project site in time for installation.

1.9 WARRANTY

A. Comply with General Conditions and Division 1 Section “Product Requirements”.

PART 2 PRODUCTS

2.1 UNAUTHORIZED MATERIALS

A. Materials and products required for work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the Owner.

2.2 ACCEPTABLE MANUFACTURERS

A. Products of the manufacturers specified in this section establish the minimum functional, aesthetic and quality standards required for work of this section.

B. Substitutions: Comply with General Conditions using form in Division 1 Section “Substitution Request Form”.

2.3 METALS, GENERAL

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

B. Recycled Content: For materials containing post-industrial (pre-consumer) and/or post-consumer recycled content, contractor shall document the cost and percentage (by weight) of each material broken out by post-industrial (pre-consumer) and post-consumer content.

2.4 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: ASTM B221 (ASTM B221M), Alloy 6063-T5/T52.

C. Extruded Structural Pipe and Round Tubing: ASTM B429/B 429M, Alloy 6063-T6.

D. Drawn Seamless Tubing: ASTM B210 (ASTM B210M) or ASTM B483/B 483M, Alloy 6063-T832.

E. Plate and Sheet: ASTM B209 (ASTM B209M), Alloy 5005-H32.

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

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

2.5 STAINLESS STEEL

A. Tubing: ASTM A554, Grade MT 304 and Grade MT 316L.

B. Pipe: ASTM A312/A 312M, Grade TP 304 and Grade TP 316L.

C. Castings: ASTM A743/A 743M, Grade CF 8 or CF 20.

D. Sheet, Strip, Plate, and Flat Bar: ASTM A666, Type 304 and Type 316L.

E. Bars and Shapes: ASTM A276, Type 304 and Type 316L.

2.6 STEEL AND IRON

A. Tubing: ASTM A500 (cold formed).

B. Bars: Hot-rolled, carbon steel complying with ASTM A29/A 29M, Grade 1010.

C. Plates, Shapes, and Bars: ASTM A36/A 36M.

D. Sheet Steel; Cold-Rolled: ASTM A1008/A1008M; either commercial steel or structural steel, exposed.

2.7 FASTENERS

A. Fastener Materials: Unless otherwise indicated, provide the following:
   1. Stainless-Steel Items: Type 304 stainless-steel fasteners, or Type 316 for use with Type 316 material.
   2. Dissimilar Metals: Type 304 stainless-steel fasteners.

B. Fasteners for Anchoring to Other Construction: Unless otherwise indicated, select fasteners of type, grade, and class required to produce connections suitable for anchoring indicated items to other types of construction indicated.

C. Provide concealed fasteners for interconnecting components and for attaching decorative metal items to other work unless otherwise indicated.
   1. Provide tamper-resistant, square or hex socket flat-head machine screws for exposed fasteners unless otherwise indicated.

D. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488, conducted by a qualified independent testing agency.

E. Post-Installed Anchors: Torque-controlled expansion type or chemical type.
   1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941 (ASTM F1941M), Class Fe/Zn 5 unless otherwise indicated.
   2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F593 (ASTM F738M), and nuts, ASTM F594 (ASTM F836M).

2.8 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
   1. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.

C. Universal Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
   1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187.

2.9 FABRICATION, GENERAL

A. Assemble items in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

B. Make up wire-rope assemblies in the shop to field-measured dimensions with fittings machine swaged. Minimize amount of turnbuckle take-up used for dimensional adjustment so maximum amount is available for tensioning wire ropes. Tag wire-rope assemblies and fittings to identify installation locations and orientations for coordinated installation.

C. Form decorative metal to required shapes and sizes, true to line and level with true curves and accurate angles and surfaces. Finish exposed surfaces to smooth, sharp, well-defined lines and arris.

3. Boxes and covers at strobe light at lobby walls.
4. Security equipment cover plates at Security Desk.

2.13 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.

2.14 STAINLESS-STEEL FINISHES

A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
1. Run grain of directional finishes with long dimension of each piece.

C. Directional Satin Finish: No. 4.

D. Circumferential Satin Finish: No. 4.

F. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

G. Finish Designations on Drawings:
1. SS-6: Brushed finish; finish level and grain orientation to be determined with sample submittal.
2. Location: Lobby wall framing and trim.

2.15 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize products made from rolled, pressed, and forged steel shapes, castings, plates, bars, and strips indicated to be galvanized to comply with ASTM A123/A 123M.
1. Hot-dip galvanize steel and iron hardware indicated to be galvanized to comply with ASTM A153/A 153M.
2. Do not quench or apply post-galvanizing treatments that might interfere with paint adhesion.
3. Fill vent and drain holes that will be exposed in finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

B. Preparing Galvanized Items for Shop Priming: After galvanizing, thoroughly clean decorative metal of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.

C. Preparing Nongalvanized Items for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with requirements indicated below:
1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Interiors (SSPC Zone 1A): SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."

D. Primer Application: Apply shop primer to prepared surfaces of items unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
1. Shop prime uncoated ferrous-metal surfaces with universal shop primer unless zinc-rich primer is indicated.
2. Do not apply primer to galvanized surfaces.

E. High-Performance Coating: Apply epoxy intermediate and polyurethane topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.
1. Color: Match Architect's sample.

F. Powder-Coat Finish: Prepare, treat, and coat nongalvanized ferrous metal to comply with resin manufacturer's written instructions and as follows:
1. Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Treat prepared metal with iron-phosphate pretreatment, rinse, and seal surfaces.

3. Apply thermosetting polyester or acrylic urethane powder coating with cured-film thickness not less than 1.5 mils (0.04 mm).
4. Color: Match Architect's sample.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of decorative metal.

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

3.2 INSTALLATION, GENERAL

A. Provide anchorage devices and fasteners where needed to secure decorative metal to in-place construction.

B. Perform cutting, drilling, and fitting required to install decorative metal. Set products accurately in location, alignment, and elevation, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items to be built into concrete, masonry, or similar construction.

C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of decorative metal, restore finishes to eliminate evidence of such corrective work.

D. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.

E. Install concealed gaskets, joint fillers, insulation, and flashings as work progresses.

F. Restore protective coverings that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at same location.
   1. Retain protective coverings intact; remove coverings simultaneously from similarly finished items to preclude nonuniform oxidation and discoloration.

G. Field Welding: Comply with applicable AWS specification for procedures of manual shielded metal arc welding and requirements for welding and for finishing welded connections in "Fabrication, General" Article. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.

3.3 INSTALLING HALL PUSH-BUTTON STATIONS AND ELEVATOR DESTINATION STATIONS

A. Coordinate installation of combination hall push-button stations with installation of related elevator signal equipment components specified in Division 14 Section "Electric Traction Elevators." Secure units in place with faceplate overlapping surrounding wall finish and drawn into contact with surrounding wall finish at entire perimeter of faceplate.

3.4 INSTALLING THRESHOLDS

A. Install thresholds where indicated, level in relation to adjacent flooring.

B. Set in adhesive.

3.5 INSTALLING METAL REVEALS

A. Install reveals level and plumb.

B. Secure reveals to gypsum board and non-structural metal framing.

3.6 CLEANING AND PROTECTION

A. Unless otherwise indicated, clean metals by washing thoroughly with clean water and soap, rinsing with clean water, and drying with soft cloths.

B. Protect finishes of decorative metal from damage during construction period with temporary protective coverings approved by decorative metal fabricator. Remove protective covering at time of Substantial Completion.

C. Restore finishes damaged during installation and construction period so 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.

END OF SECTION

D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

E. Form simple and compound curves in bars, pipe, tubing, and extruded shapes by bending members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.

F. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

G. Mill joints to a tight, hairline fit. Cope or miter corner joints. Fabricate connections that will be exposed to weather in a manner to exclude water.

H. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous locations.

I. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Cut, reinforce, drill, and tap as needed to receive finish hardware, screws, and similar items unless otherwise indicated.

J. Comply with AWS for recommended practices in shop welding. Weld behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded joints of flux, and dress exposed and contact surfaces.
   1. Where welding cannot be concealed behind finished surfaces, finish joints to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 Welds: no evidence of a welded joint.

K. Provide castings that are sound and free of warp, cracks, blowholes, or other defects that impair strength or appearance. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks.

2.10 THRESHOLDS

A. Fabricate thresholds from stainless-steel plate stock of profile indicated.

2.11 HALL PUSH-BUTTON STATIONS AND ELEVATOR DESTINATION STATIONS

A. Fabricate units of stainless steel to comply with details indicated. Coordinate with requirements in Division 14 Section "Electric Traction Elevators" to provide integrated, closely fitted assemblies.
   1. Fabricate faceplates from 3.2-mm thick sheet with edges beveled at a 45-degree angle for one-half thickness of metal.
   2. Provide units with emergency pictorial signs and text, complying with requirements of authorities having jurisdiction, indicating that in fire emergency, elevators should not be used and that stairways should be used instead. Engrave pictorial sign and text into front surface of faceplates to a depth of 1.6 mm with engraving painted red.
   3. Provide cutouts in faceplates of units for push buttons of elevator hall push-button station, card reader, and elevator key switches. Coordinate locations and sizes of cutouts so additional faceplate is not required and so faces of push buttons are flush with fronts of faceplates and key switches project beyond faceplate only by depth of bezel.

2.12 STAINLESS STEEL PANELS AND TRIM

A. General: Fabricate stainless steel panels, plate and trim to designs indicated from stainless steel sheet, bars and shapes of sizes and profiles indicated.
   1. All shapes and assemblies made from bar stock are to be fabricated from "true bar" material or finished to equal or better quality.
   2. All corners shall be sharp and true.
   3. Maintain profile of member through entire bend without buckling, twisting, or otherwise deforming.
   4. Coordinate anchorage devices with supporting structure.
   5. All stainless steel material used in production of panels shall be from the same coil stock.
   6. Fabricate and install panels to maintain a consistent directional orientation as taken from the stainless steel coil.
   7. Finish: Brushed stainless steel finish as specified in this section where indicated on the drawings.

B. Schedule of Items: Items shall include, but not be limited to, the following:
   1. Framing and trim at stone walls.
   2. Stainless steel reveals.